OBJECTIVES

• Obesity is a global public health problem affecting children and adults of all ages.
• Modification of diet and physical activities are recommended as the first line treatment for childhood obesity.
• A minimum of 0.25 reduction in body mass index Standard Deviation Score (BMI-SDS) after short term interventions have been shown to improve adiposity and metabolic health in children 1.
• Longer term BMI and health information from adults who received obesity interventions in childhood is lacking.
• We undertook a feasibility study to investigate the metabolic outcomes of young adults who have received lifestyle interventions during adolescence for early onset obesity.

METHODS

• We planned to recruit 30 young adults aged 16-25 years of age who had received intervention in our weight management clinic for childhood obesity.
• All patients had BMI >98th centile before the age of 18 years at the beginning of intervention.

Weight management interventions included:
• A general health assessment, axiologing and metabolic screening for obesity-related comorbidity.
• 4-monthly follow up for a minimum of 1 year.
• Life-style advice by members of the multidisciplinary team (paediatrician, dietician, exercise specialist and psychological input if indicated).

Metabolic screening included the following:
• Blood pressure (BP).
• Total body and truncal fat percentages measured by Tanita® bioimpedance segmental body composition analyser.
• Fasting lipid profile, alanine transaminase (ALT), and oral glucose tolerance tests (OGTT).
• Insulin sensitivity was defined by the whole body composite-insulin-sensitivity-index (ISI_composite).

Results of the metabolic outcomes from the beginning of interventions and reassessment were compared using Mann Witney U tests with 5% significance.

RESULTS

• Total of 25 cases (male =10) for analysis - 5 cases were excluded as they received weight loss intervention for <1 year.
• There were 21 Caucasian, 2 South Asian, 2 mix Caucasian/Black of median ages 14.1 (9.5-17.6) years at the beginning of intervention and 18.2 (16.1-24.8) years at re-assessment.
• With lifestyle interventions, after 3.5 (1.4-14.1) years, 28% (7/25) had BMI-Z score reduction of >0.25 from baseline (referred to as “responders”).
• Responders demonstrated a significant reduction in BMI-SDS, total fat%, systolic BP and glucose area-under-the-curve from OGTT at re-assessment compared with baseline.
• Non-responders showed significant increases in total fat% and trunk fat%.
• At re-assessment, responders compared with non-responders showed significant lower BMI-SDS, total fat%, trunk fat %, insulin at 120 minutes from OGTT and ALT, as well as higher ISI_composite, but there were no group differences in diastolic BP, TG, HDL and HDL.
• There were no patients with impaired glucose tolerance or diabetes in either group at baseline or reassessment.

CONCLUSIONS

• Results of this study suggested that slightly over 1 in 4 obese adolescents may benefit in the longer term after lifestyle modification interventions with associated improvements in body composition and metabolic parameters in young adulthood.
• Although the BMI-SDS of all subjects in this cohort has remained in the obese range at re-assessment, those who achieved and maintained weight loss after intervention still benefit from improved metabolic outcomes in early adulthood.
• Further studies are needed to assess the overall cost effectiveness of weight loss interventions implemented in obese children.

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REFERENCES

1. What reduction in BMI SDS is required in obese adolescents to improve body composition and cardiometabolic health?